

REMARKS

As a preliminary manner, Applicant appreciates the time and courtesy extended by the Examiner during the telephone interview of April 4, 2007. The issues discussed are included in the following remarks.

Claims 1, 2, 5, 6, 12, 14, 15, 20, 22, 24 and 27 stand rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,363,699 to McCall. Claims 2 and 24 have been cancelled, without prejudice, thereby rendering this rejection moot with regard to these claims. However, with regard to Claims 1, 5, 6, 12, 14, 15, 20, 22 and 27, Applicant respectfully traverses this rejection.

Applicant respectfully submits that the cited reference fails to disclose all of the features of the present invention. More specifically, the McCall reference fails to disclose a fluid flow stabilizer that includes, *inter alia*, a flow straightening device that “comprises one or more longitudinally extending vanes, wherein at least portions of radially outer edges of said vanes are separated from said internal diameter of said fluid conduit section, such that a space is defined therebetween” (emphasis added), as defined in amended independent Claim 1. Similarly, with regard to independent Claim 6, the McCall reference also fails to disclose a stabilizer that includes, *inter alia*, a flow straightening device that “comprises at least four vanes, with each vane arranged adjacent to perpendicular vanes, and wherein at least portions of radially outer edges of said vanes are separated from said internal diameter of said fluid conduit section, such that a space is defined therebetween” (emphasis added).

One example of the flow straightening device of independent Claims 1 and 6 is shown in Applicant's Figure 2, which shows flow straightening device 50 within flow stabilizing device 22 (see also Applicant's Figure 1). As can be seen in Figure 2, this embodiment of the flow stabilizing device 22 includes a fluid conduit section 38 with an internal diameter defined by layer 42. The Figure 2 embodiment also includes a flow straightening device 50, which, in this embodiment, is in the form of a plurality of vanes 52. As defined in independent Claims 1 and 6, and as discussed during the telephone interview of April 4, 2007, "at least portions of radially outer edges of said vanes [52] are separated from said internal diameter of said fluid conduit section [38], such that a space is defined therebetween." As recited in paragraph [0032] of the present application, the space defined between the outer radial edges of the flow straightening device 50 and the internal diameter of the conduit section 38 allows for lateral or radial movement of the end 30 of the fluid conduit section 38, without causing the vanes 52 to come into contact with the inside layer 42 of the conduit section 38.

In contrast, as can be seen in Figures 2 and 3 of the McCall reference, the flow straightening vanes of vane sets 36 and 38, which the Examiner equated with the claimed "flow straightening device," all have outer radial edges that extend to reach the internal diameter of conduit 10, and thus are not separated from the internal diameter, nor is there a space defined therebetween. Accordingly, vane sets 36 and 38 of the McCall reference cannot be considered as the claimed "flow straightening device" because no portions of the radially outer edges of vane sets 36 and 38 are separated from the internal diameter of

conduit 10, nor is there a space defined therebetween, as recited in independent Claims 1 and 6. Thus, as all of the features recited in independent Claims 1 and 6 are not disclosed in the McCall reference, Applicant respectfully requests the withdrawal of this §102(b) rejection of independent Claims 1 and 6, and associated dependent Claims 5, 12, 14 and 15.

With regard to independent Claim 16 (which appears to be included in this rejection, even though it is not listed in line 7 of paragraph 4 of the Final Office Action), as discussed during the telephone interview of April 4, 2007, Applicant respectfully submits that the McCall reference fails to disclose a valve, as correctly acknowledged by the Examiner in paragraph 9 (line 19) of the Final Office Action. Accordingly, for at least this reason, Applicant respectfully requests the withdrawal of this §102(b) rejection of independent Claim 16 and associated dependent Claims 20 and 22.

With regard to independent Claim 27, Applicant respectfully submits that the McCall reference fails to disclose that the fluid conduit section is constructed of a flexible material to absorb at least one of shock, vibration and mis-alignment in the pipeline, as correctly acknowledged by the Examiner in paragraph 6 (lines 17-18) of the Final Office Action. Accordingly, for at least this reason, Applicant respectfully requests the withdrawal of this §102(b) rejection of independent Claim 27.

Claims 1, 2, 4-8, 10-12, 14, 15, 24 and 27 stand rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of United States Patent No. 5,273,321 to Richter and further in view of United States Patent No. 6,012,492 in view of Kozyuk. Claims 2, 11 and 24 have been cancelled, without prejudice, thereby rendering this rejection moot with

regard to these claims. However, with regard to Claims 1, 4-8, 10, 12 14, 15 and 27, Applicant respectfully traverses this rejection.

As discussed above, the McCall reference fails to disclose a flow straightening device wherein at least portions of the radially outer edges of the vanes are separated from the internal diameter of the fluid conduit section, such that a space is defined therebetween, as recited in independent Claims 1 and 6. Additionally, the McCall reference also fails to suggest this feature. Further, neither the Richter reference nor the Kozyuk reference remedy this deficiency, nor were they relied upon as such. Accordingly, as all of the features of independent Claims 1 and 6 are not disclosed or suggested in the cited references, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claims 1 and 6 and associated dependent Claims 4, 5, 7, 8, 10, 12, 14 and 15.

With regard to independent Claim 27, Applicant respectfully submits that the cited references fail to disclose or suggest a pipe flow stabilizer positioned between a pump and a turbulence creating partially opened valve that includes, *inter alia*, a fluid conduit section having a length and an internal diameter, with the length being less than five times the diameter, as defined in independent Claim 27.

Applicant's Figure 2 shows one example of the device of Claim 27, including a fluid conduit section 38 with a first end 24, for mounting to a pump, and a second end 30, for mounting to a turbulence creating partially opened valve. As disclosed in the instant specification in paragraph [0025], prior art devices without Applicant's fluid conduit section required that the length of pipe between the pump and the valve to be of the order of between

five and ten times the diameter of the pipe in order to allow the turbulence created by the pump to decrease to an acceptable level for proper operation of the valve. With Applicant's fluid conduit section, the spatial displacement between the pump and the valve can be reduced to less than five times the pipe diameter because the flow straightening device (such as vanes 52) reduces the turbulence to an acceptable level for the valve.

The object of the device of McCall is to condition/stabilize/homogenize fluid flow through a conduit and to then very precisely and accurately measure/sample that fluid flow, such as required for certification of fire department pumper units and fire hydrants, which typically requires an accuracy of plus or minus one percent. *See, e.g.*, col. 1, lines 6-36; col. 2, lines 40-48; col. 3, line 65, through col. 4, line 18. Thus, any modifications that hinder the ability to precisely and accurately measure/sample the fluid flow would render the device of McCall unsatisfactory for its intended purpose, which is an improper modification. *See e.g.*, MPEP §2143.01(V); *In re Gordon*, 221 USPQ 1125, Fed. Cir. 1984.

As correctly acknowledged by the Examiner, McCall lacks a valve. *See* Final Office Action, page 9, paragraph 9, lines 19-20. Accordingly, the Examiner relied on Kozyuk for this feature. However, in order for the valve of Kozyuk to be positioned in a location in the McCall device of Figure 2 such that the length of the linear fluid conduit is "less than five times the diameter," as defined in Claim 27, the valve must be placed between detecting means 32 and stabilizing means 30 (because if the valve is placed to the right of detecting means 32, the length of the fluid conduit is not "less than five times the diameter"). However, in order to satisfy the claimed feature of a "turbulence creating partially opened

valve," such a valve must, by definition, create turbulence. If such a turbulence creating device was included before the detecting means 32, the detecting means would not be able to precisely and accurately measure the fluid flow (the point of stabilizing means 30 is, in part, to reduce turbulence so that precise and accurate measurements may be taken). Thus, such a modification is improper because adding a turbulence creating partially opened valve at this location would render the device of McCall unsatisfactory for its intended purpose of providing precise and accurate fluid flow measurements. Further, completely eliminating the detecting means 32 is also an improper modification because to do so would also render the device of McCall unsatisfactory for its intended purpose of providing accurate fluid flow measurements. Thus, for at least these reasons, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claim 27.

In response to arguments similar to those made in the previous paragraph, the Examiner responded in the Final Office Action by stating that: conduit section 12 of McCall is less than five times the internal diameter; the valve can be placed within section 12 of McCall; even if the valve were to be placed after the detecting means, a properly sized valve would not affect the accuracy; and the device could be used to compare one hydrant to another.

In response to the Examiner's assertions, Applicant agrees that Figure 2 of McCall, if drawn to scale, appears to show that conduit section 12 is less than five times its internal diameter. Additionally, Applicant asserts that it is irrelevant if a properly sized valve were to be placed *after* the detecting means of McCall because such a location would not

satisfy the claimed language of a conduit section that is less than five times its internal diameter. Finally, Applicant disagrees that one of ordinary skill in the art would have been motivated to place a turbulence creating partially opened valve within conduit section 12 of McCall, which is the only location that would result in a conduit section that is less than five times its internal diameter. A turbulence creating partially opened valve, by definition, creates turbulence. To accurately measure fluid flow, a substantially flat face velocity profile (i.e., no turbulence) is desired. *See* McCall, col. 1, lines 28-36. Conduit 12 of McCall houses flow conditioning, stabilizing and homogenizing means, and conduit 14 includes means for determining fluid flow. *See* McCall, col. 5, lines 9-14. It makes no sense to provide a turbulence creating device, such as a turbulence creating partially opened valve, between a turbulence reducing section of conduit, like conduit 12 of McCall, and a fluid flow detecting means (such as 32), which requires a lack of turbulence for accurate measurement.

The Examiner appears to argue that accuracy is not required if the device is used to compare measurements from one hydrant to another. However, such a comparison is not the purpose of McCall. Instead, the device of McCall is intended to create “consistent and highly reliable flow measurements” (col. 2, lines 40-43). There is no mention of merely comparing the inaccurate measurements of the turbulent flow of one hydrant to the inaccurate measurements of the turbulent flow of another hydrant. Nor is there any suggestion of such a comparison. Accordingly, Applicant re-asserts that to modify McCall by placing a turbulence creating valve between the turbulence reducing components (of conduit 12) and the flow measuring components (of conduit 14) would make the device unsatisfactory for its

original intended purpose, which is an improper modification. *See e.g.*, MPEP §2143.01(V); *In re Gordon*, 221 USPQ 1125, Fed. Cir. 1984. Thus, Applicant once again respectfully requests the withdrawal of this §103 rejection of independent Claim 27.

Claims 3 and 9 stand rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of Richter and Kozyuk and further in view of United States Patent No. 4,366,746 to Rosencrans. Claim 13 stands rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of Richter and Kozyuk and further in view of United States Patent No. 4,365,932 to Arnaudeau. Applicant respectfully traverses these rejections.

Claims 3, 9 and 13 all depend, directly or indirectly, from either independent Claim 1 or independent Claim 6, and therefore include all of the features of either Claim 1 or Claim 6, plus additional features. Accordingly, Applicant respectfully requests that these §103 rejection of dependent Claims 3, 9 and 13 be withdrawn considering the above remarks directed to independent Claims 1 and 6, and also because the additional references (Rosencrans and Arnaudeau) do not remedy the deficiencies noted above, nor were these additional references relied upon as such.

Claims 16 and 20-22 stand rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of Kozyuk. Applicant respectfully traverses this rejection.

Applicant respectfully submits that the cited references, alone or in combination, fail to disclose or suggest all of the features of the present invention. More specifically, as discussed above with regard to the §103 rejection of Claim 27 under McCall, Richter and Kozyuk, one of ordinary skill in the art would not have modified McCall by

adding the pump of Kozyuk between conduits 12 and 14 to obtain a pump connecting with a “length being less than five times the diameter.” Accordingly, for the same reasons previously discussed, Applicant respectfully requests the withdrawal of this §103 rejection of independent Claim 16 and associated dependent Claims 20-22.

Claims 17 and 19 stand rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of Kozyuk and further in view of Richter. Claim 18 stands rejected under 35 U.S.C. §103 as being unpatentable over McCall in view of Kozyuk and further in view of Rosencrans. Applicant respectfully traverses these rejections.

Claims 17-19 all depend from independent Claim 16, and therefore include all of the features of Claim 16, plus additional features. Accordingly, Applicant respectfully requests that these §103 rejections of dependent Claims 17-19 be withdrawn considering the above remarks directed to independent Claim 16, and also because neither the Richter reference nor the Rosencrans reference remedy the deficiencies discussed above, nor were they relied upon as such.

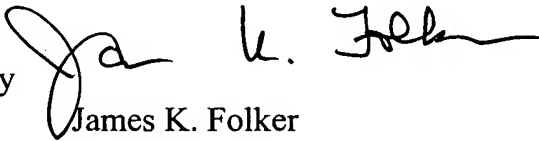
For all of the above reasons, Applicant requests reconsideration and allowance of the claimed invention. Should the Examiner be of the opinion that a telephone conference

would aid in the prosecution of the application, or that outstanding issues exist, the Examiner is invited to contact the undersigned.

Respectfully submitted,

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